THE PLOUGH BOY.

BY S. SOUTHWICK.

"He that observeth the wind shall not sow, and he that regardeth the clouds shall not reap."—BUT—"He that tilleth his land shall have plenty of bread."—*Ecclesiastes.*

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From the Literary and Scientifie Repository.

MANUAL OF CHEMISTRY.

A manual of Chemistry, containing the principal facts of the Science, arranged in the order in which they are discussed and illustrated in the Lectures of the Royal Institution of Great-Britain. By WILLIAM THOMAS BRANDE, &c. &c. The first American, from the second London edition. Three volumes in one. To which are added, Notes and Emendations, by *William James Macneven, M. D.* Professor of Chemistry in the College of Physicians and Surgeons of the University of the State of New-York, &c. 8vo. pp. 638. Long: New-York, 1821.

On reading this title there arises, at once a strong presumption that a book, which is the text of the Chemical Lectures given at the Royal Institution of Great Britain, is a work of merit; and that the gentleman who was deemed worthy to be the successor of Sir H. Davy, in the chair of chemistry, is fully equal to its production. An expectation so just is not disappointed in the present instance; and Brande's Manual, considered as a class-book in the hands of an experienced professor, will be found the most useful of any of the elementary works we have seen.

Mr. Brande follows the arrangement made by Sir H. Davy in the elements of chemical philosophy. To the first division, ending with the simple acidifiable and inflammable substances, there is added a very serviceable tabular view of the specific gravities and equivalent numbers of the supporters of combustion and acidifiable substances, and of the compounds which they form with each other.

The second volume of the English edition begins with the consideration of the metals, and is nearly one half occupied with the assay and analysis of metalliferous compounds.—This portion of the work is that in which, we think, it best deserves to be preferred to others professing the same general objects, and it is happily one of the greatest interest.

Another valuable table is placed at the end of this part, giving a view of the specific gravities and equivalent numbers of the metals and their compounds, the substances with whose examination it concludes.

The third volume, (for, by skilful authorship, the English edition is swelled out to three goodly tomes,) comprehends, as we find in other elementary works, the chemistry of vegetable and animal substances, together with a third tabular view of the equivalent numbers of vegetable and animal products and their combinations.

By equivalent numbers is understood a numercial representation of the definite proportions in which chemical constituents are known to combine. They afford the most interesting views of compound bodies; they have been for years past, and they continue still to be, the most philosophical subject of research in the science of chemistry.

The whole doctrine embraced by these considerations, has received the name of the atomic theory. It is not omitted in the manual: no treatise on chemistry can now leave it out; but we are surprised to find it in Brande's work, London edition, 1821, as imperfect in many respects, as when first promulgated by Dalton, 1804, or as we find it by Sir H. Davy, in 1812. A period of so many years is an age in the history of chemistry, as now cultivated; and this subject in particular has, within this period, been a theme of successful investigation to many of the greatest chemists living. That it should be presented to us in the most correct state in which it is now known, in a work expressly written for the use of learners, is no unreasonable expectation, whether the author have contributed or not by original researches to advance it; or he live in good or bad terms with those who did?

Among British philosophers, the able and learned editor of the Annals of Philosophy has given this doctrine its greatest and most accurate developement. He has in a manner taken it out of the hands of his countrymen, equalling, if not surpassing the additions and improvements made to it on the neighbouring continent. But it happens that the philosophers of the Royal Institution have become his fellow labourers in this field of science. There even exists a strong aversion on their part, or at least on that of one of them, to this rival editor and author. This has been manifest to the readers of the Journal of Science, long before it showed itself in so open and undisguised a manner as in the 11th volume of the Journal. Hence probably the defect we have noticed. But for us, on this side the Atlantic, while we feel grateful to eminent persons who use their better opportunities for advancing the sciences we cultivate, without partiality or prejudice, we take from each, be he friend or foe to the other, what each may have best; and we cheerfully give due credit to all.

The American edition of the manual of chemistry is evidently put forth in this spirit. The valuable discoveries and researches of Dr. Thompson are introduced, where they should have been placed before, and where nothing equal can probably be substituted, in the present state of our knowledge. In this respect we consider the American as having an advantage over the English edition, and as better suited to the purpose of a class book for students of chemistry. Another difference between the two, which we also deem an advantage in favour of the former, is the omission of a long dissertation on the history of chemistry, that occupies a third nearly of the first volume. An index that, with the help of many repetitions, is made to take up as much more of the third volume, is here very much abridged.—They could not have retained in the American edition consistently with the avowed plan of furnishing to the students of the University of New-York a cheap and compendious, no less than a good and well arranged class book.—In England, indeed, it may have best accorded with the views of the publisher to increase the quantity of letter press.

In adapting the representative numbers throughout the whole book to the present

state of the science, the American editor has executed a task of more difficulty than show, and which demanded the application of a good deal of calculation and labour. The amount of each will be very apparent to those who are most familiar with the subject.

The typographical part is as good as was consistent with cheapness; but the wood-cuts, executed by Anderson, are not inferior to those of the original, and are worthy of the reputation of that distinguished artist.

Shortly after the appearance of the Manual of Chemistry, there was published by the editor a tabular view of the modern nomenclature and system of Chemistry, more comprehensive than any of the same nature that we have yet seen. Such works, when well executed, are of great utility. They are to science what maps are to history and geography. The one before us exhibits, at one view, the several simple substances now known, their classification, derivation, the range of compounds which they produce by their intimate and varied union, as well as the character and distinctive termination of all these compounds. It is presumed that this table will afford to the chemical student great facilities for arrangement, recollection, and reference.

GOOSEBERRY CATERPILLAR.

From Anderson's Recreations in Agriculture.

Sir,

Your correspondent *Verax* (p. 135), did right in distinguishing the two kinds of gooseberry caterpillars from each other; they are both pernicious to that favourite shrub; and, as the public are ever desirous of learning how to secure fruit-trees from the ravages of destructive insects, I shall beg leave to add a few farther particulars to those which you have already brought forward for that purpose.

Though the caterpillar of the phalæna grossulariata be the largest of the two, yet I am inclined to think it is the caterpillar of the tenthredo that does the principal mischief, as those of this species are more numerous, and multiply faster than the other; my attention at this time shall therefore be principally directed towards them.

Verax hath justly observed, that the tenthredo breeds twice a year. Its regular procedure is thus: the chrysalides which have been deposited in autumn at the bottom of the stem, remain in that state till the warmth of the spring brings forth the leaves, and soon after the fly appears, which deposits its eggs, from which, in a short time issue forth the young fry which are to feed upon them. These are at first very small, and do little mischief; but as they increase in size, their ravages become extremely perceptible. They belong to the class of gregarious caterpillars, as you have justly observed, so that they love to feed as close together as they can; and by this means give a good opportunity of having them destroyed by picking off the leaves, as you direct; and if this be done at an early part of the season, and with sufficient care, they may be almost entirely destroyed by that means.—Notwithstanding the utmost care that can be taken, however, some individuals will escape. These, when they are about to enter into their chrysalis state, hide themselves in the earth, where they undergo that change, and after a short time come forth in their perfect fly state. This generally happens about the month of July, when, if you once more examine your bushes, you may perceive them; but this creature is so small, and so much like the common house fly, that few persons who are not professed naturalists take any notice of it.—The tenthredo, however, is greatly more sluggish than the common fly. It often remains quite stationary for several minutes together, and is not easily disturbed. From this circumstance, and a yellowish tint which can be perceived on it, it can be readily recognised by a common observer, even without taking notice of its four wings, which clearly distinguish it from the fly; but these are not easily seen unless when it extend them, which is but seldom. This sluggishness of temperament renders the tenthredo an easy prey to birds who seek after it, and likewise puts it in the power of man to destroy it readily by hand; nor ought he to neglect to do so as fast as he can. If these be neglected, they soon find their mates deposit their eggs in great numbers, and then die. They should therefore be searched for as soon as they appear, and then destroyed before they have time to lay their eggs; otherwise the killing them will be of no service, as all the ill they can possibly do will have been already done. The eggs very soon hatch at this season of the year, and the young caterpillars, if these precautions have been neglected, issue forth in swarms, and destroy the leaves in autumn.—This brood has a much better chance of escaping the birds than that in the spring; for now the birds have much greater abundance of other kinds of food to allure them from it; but the season is more precarious, and in backward years the leaves sometimes before they fail are converted into their chrysalis state, and then these of course all perish. Such of them as have gone into their chrysalis state, and are surprised by the cold weather, pass the winter in this state; which are changed into a fly early in the spring. These in a short time deposit their eggs on the under side of the young leaves, where they may be seen in rows like little white specks along their ribs. This would be a proper time for picking off the infected leaves, were it not for the difficulty of observing them, on account of the lowness of the shrubs. If this be attempted, the leaves should be carefully carried out of the garden; but the safest way is to hunt the fly as soon after it appears as possible.

One particular, sir, that you have taken notice of deserves to be here remarked more particularly: it is, that when bushes have been much injured by the caterpillar in one season, there is a great probability that they will not be free the next, or for many succeeding years. This is almost infallible if it has been the tenthredo caterpillar that has done the mischief, and if it has been suffered to escape with impunity; for as the fly of this species seldom moves far from its native place, it generally rests upon the bush at the bottom of which it was produced, and there also deposits its eggs. If the mischief has been done by the phalæna caterpillar, this is not so likely to happen; as the butterfly is more active, and takes a much more excursive range, so that it may deposit its eggs at a considerable distance from its parent bush.

From these notices, sir, your readers may easily perceive that it is by no means such a difficult matter as is commonly imagined to preserve gooseberries from this destructive ravager. It is a process of the same sort with that of freeing a garden from seed weeds. If they have once obtained possession of it, no inconsiderable pains are required *at the beginning* to root them out; but if the exertions be then great, so as to allow few to get to seed, and if that attention to prevent their running to seed be never discontinued, it is well known that after a short time scarcely any weeds but those which spring from casual seeds, brought by wind or other accidents, ever appear, and these few when they do appear are easily plucked up. The case is so exactly the same with this caterpillar, that I need not dwell upon it further than barely to remark, that in killing one animal you infallibly destroy many hundreds of eggs, so that a little attention in this way is very well bestowed.

With regard to the caterpillar of the phalæna the case is a little different; but fortunately these are less numerous, and of a larger size than the other, and therefore more easily seen, and may of course, be picked off with less difficulty; neither do they multiply so fast, as the breed only once a year. That your readers may be able to distinguish these, and act accordingly, I use the freedom to send you, with this letter, a well preserved specimen of the phalæna grossulariata, and also of the tenthredo, which if engraved in your usual manner, will enable any one to known them at first sight. I am sorry I did not take drawings of the two caterpillars at the proper season; but they may be easily recognised by the following descriptions:

It will be easy for a professed naturalist to distinguish the two kinds of caterpillars, merely by being told that the one is changed into a phalæna, or butterfly, and the other into a fly with transparent wings; but to others more particular information becomes necessary. These should be informed that there are two classes of caterpillars which are easily distinguishable from each other chiefly by the

number of their legs. Every caterpillar has six hard, or horny like legs placed on the fore part of the body, and several pairs of cartilaginous legs, which differ in number from each other. It has been remarked, however, that no caterpillar that has above sixteen legs in the whole is ever converted into a butterfly of any sort; and that, of course, every caterpillar that afterwards is converted into a fly of any sort has eighteen legs at the least, or more, up to twenty-eight. Those of the first class only have been called by some naturalists caterpillars, and the others have been denominated false caterpillars; but this distinction is not now so much regarded as formerly, since all insects have come to be classed only while in their perfect state. The tenthredo caterpillar has twenty legs; that of the phalæna only sixteen. They may be easily recognised at first sight by their habits and general appearance, although their colours are much the same, green being in both the predominant; that of the phalæna is, in its stages, of a larger size, and does not go in groups, its head more pointed, and not so much of a ball-like form as the other. A good figure of the phalæna and its caterpillar is given in Curtis's directions for preserving insects; that of the tenthredo and its caterpillar in Reaumur, T. V. Plate X. Fig. 4, 5, 6, and 7.

The *phalæna grossulariata*, of which an exact figure is here given,* is white, the spots are velvety black, with some sulphur-coloured streaks, which are marked by lines on the engraving. The fly exhibits a faint and scarcely perceptible yellowish tint. Its four wings are only discoverable when it spreads them out for flight, which it rarely chooses to do.

ALBINUS.

* *We regret that we cannot give the plate or figure of the insect, in* THE PLOUGH BOY, *as the profits of this work will not warrant, at present, such expense.*

FROM THE LONDON FARMERS' JOURNAL.

MANURING FOR TURNIPS.

In Malcolm's *Agriculture of Surrey*, (2nd vol.), in which he treats very fully of manures, there are some experiments and observations on *road-scrapings*: these perhaps might not have appeared so striking, if an experiment made by the Editor two years ago, had not agreed therewith, and confirmed the facts. It was but a garden experiment, as follows:—On a piece of marshy soil, naturally heavy and apt to bind, a covering of one inch of scrapings from the City Road [*ballast* ground to powder, and enriched with the droppings of cattle] was laid, and dug in, and the bed sowed with Norfolk White turnip; they came on well, and were thinned, hoed, and set out as their growth required. They grew very vigorously to top, and until the bulbs should have swelled, when they all turned yellow and died: nor could all the watering which was bestowed keep one alive. The experiments of Mr. Malcolm prove that scrapings from gravel roads may be generally suspected of containing qualities injurious to vegetation, although the droppings of cattle, &c. mixed therewith, give a temporary vigour to the plant. On the other hand, scrapings from chalky roads, or any calcareous stone, may be very useful on suitable soils. Mr. Malcolm's experiments are thus given in his work, p. 135:

"In the course of this last summer, I took occasion to analyze some pieces of Tilburster gravel,* in consequence of the repeated arguments I had held upon the subject. I made choice of two stones, the one a perfect calx, or as nearly so as I could find, the other was free from calx or iron; I reduced these to as fine a powder as I could in the mortar, and on the 28th of June I sowed six pots filled with mould from a fallow field intended for turnips, and in which none of these scrapings had ever been used, and I put from 2oz. to 8oz. of those powders in different quantities, thoroughly mixed with the mould by sifting them together; I sowed also one pot, filled the lower half with the same mould, and the upper part with the pulverised calx, and another with the same quantity of mould at bottom, and the same quantity of the powdered stone at the top, as there was of the calx. Into each of these pots, six fine plumb seeds of white round turnip were planted at equal distances, and the pots were placed together in an airy but sheltered situation; the seeds in the first six pots were all up by the 3d of July, but it was not until the 6th that any appeared in the two latter. On Tuesday the 17th all the latter had perished, though regularly watered. I emptied these pots, put the same quantity of the same mould, and the same quantity of the same powdered calx and stone separate into them, and sowed six fresh seeds in each; the same results succeeded this trial as in the preceding, and nearly as near the same time; all the plants perished at the root; having more of the same stones I pulverised them, but left the particulars more gross, and put the same quantity as before to the same quantity of mould as in the former cases, in which I sowed six fresh seeds; they vegetated well, but were all perished in six weeks, those in the stone uniformly before those in the calx. Of those which remained in the pots that were mixed with mould, some died without any apparent injury to their roots, some were cut asunder by the corrosiveness of the calx, while others had a considerable number of dark brown and red spots which had eaten the roots evidently by canker, from the vitriolic acid of the iron: and these I judged to have been kept alive so long by the effects of water only. From thence I am led to conclude, that these scrapings are injurious to vegetation, because I have found the same results from peas, kidney beans, and potatoe oats. I know it may be said, that plants not growing in the calx or pure stone proves nothing, because the same will happen to native chalk and marl; but I submit, that as far as my observations go, the farmers are indebted for the seeming benefits they derive from the scrapings to the dung and urinous particles that are continually being deposited on the road, which cannot sink into it, but are washed to the sides by every hard shower, accounting for the fineness of the grass there found; the scrapings also contain every species of decayed vegetable matter as well on the road as on the side, and these combined and laid on the land, may produce an appearance of fertility, while at the same time the land may be receiving an enemy of the most forcible kind, in the nature of calx, and this stone.—At any rate, I think it is proved, that if it does not destroy vegetation altogether, it greatly retards it, which is a matter of no ordinary consequence."

* Described as containing much sulphate of iron.—EDIT.

SHEEP.—IRRIGATION.

We begin to perceive, in every direction, the beneficial effects which flow from the establishment of Literary and Philosophical Societies in the United States. The Lyceum at Troy has done much towards advancing the natural history of our country; and its younger sister, by the same name, at Catskill, begins to develope the fruits of its interesting and important labours in the field of science. We have before us, two valuable articles, read by the President, JAMES PIERCE, at the late meetings of the Society; the one an essay on SHEEP, the other on IRRIGATION. We say, *James Pierce*, and not *James Pierce*, Esquire, because we do not like to see the name of a philosopher, who is capable of writing good things for the good of mankind, degraded by a paltry title. There is dignity in the name of JAMES PIERCE, as the useful member of a Society, employed in the noblest pursuits; a dignity which cannot be improved, though it may be impaired, by tacking to it the insignificant E S Q. We presume the gentleman in question thinks as lightly of his title as we do; nor do we believe our brother Editor of the Recorder thinks more of it. But as to his essay on Sheep, as well as that on Irrigation, we think so much of them, that we shall lose no time in laying them before our readers, not only to the credit of James Pierce, but to that of the Society over which he presides. Such Societies in every populous village, and particularly in those of our Western District, would be of incalculable benefit to the State; and we hope the time is not distant, when we shall see Utica, Manlius, Canandaigua, Geneva, &c. &c. imitating Troy and Catskill, in their laudable efforts to develope and improve the latent resources of our soil, as well as to extend the benefits, by adding new springs, to those already developed.—*Ed. Plough Boy.*

LETTERS ON ENTOMOLOGY.

[By Kirby and Spence.]

LETTER III.

METAMORPHOSES OF INSECTS.

(Concluded.)

After remaining a shorter or longer period, some species only a few hours, others months, others one or more years, in the pupa state, the inclosed insect, now become mature in all its parts, bursts the case which inclosed it, quits the pupa, and enters upon the fourth and last state.

We now see it (unless it be an apterous species) furnished with wings, capable of propagation, and often, under a form altogether different from those which it has previously borne—a perfect beetle, butterfly, or other insect. This Linne termed the *imago* state, and the animal that had attained to it the *imago;* because, having laid aside its *mask*, and cast off its *swaddling bands*, being no longer disguised or confined, or in any respect imperfect, it is now become a true representative or *image* of its species. This state is in general referred to when an insect is spoken of without the restricting term larva or pupa.

Such being the singularity of the transformations of insects, you will not think the ancients were so wholly unprovided with a show of argument as we are accustomed to consider them, for their belief in the possibility of many of the marvellous metamorphoses which their poets recount. Utterly ignorant as they were of modern physiological discoveries, the conversion of a caterpillar into a butterfly, must have been a fact sufficient to put to a nonplus all the sceptical oppugners of such transformations. And, however we may smile in this enlightened age at the inference drawn not two centuries ago by Sir Theodore Mayerne, the editor of Mouffet's work on insects, "that if animals are transmuted so may metals," it was not, in fact, with his limited knowledge on these subjects, so very preposterous. It is even possible that some of the wonderful tales of the ancients were grafted on the changes which they observed to take place in insects. The death and revivification of the phœnix, from the ashes of which, before attaining its perfect state, arose first a *worm*, in many of its particulars resembles what occurs in the metamorphoses of insects. Nor is it very unlikely that the doctrine of the metempsychosis took its rise from the same source. What argument would be thought by those who maintained this doctrine more plausible in favour of the transmigration of souls, than the seeming revivification of the dead *chrysalis?* What more probable, than that its apparent reassumption of life should be owing to its receiving for tenant the soul of some criminal doomed to animate an insect of similar habits with those which had defiled his human tenement?*

At the present day, however, the transformations of insects have lost that excess of the marvellous, which might once have furnished arguments for the fictions of the ancients, and the dreams of Paracelsus. We call them metamorphoses and transformations, because these terms are in common use, and are more expressive of the sudden changes that ensue than any new ones. But, strictly, they ought rather to be termed a series of developments. A caterpillar is not, in fact, a simple but a compound animal, containing within it the germ of the future butterfly, inclosed in what will be the case of the pupa, which is itself included in the three or more skins, one over the other, that will successfully cover the larva. As this increases in size these parts expand, present themselves, and are in turn thrown off, until at length the perfect insect, which had been concealed in this succession of masks, is displayed in its genuine form.—That this is the proper explanation of the phenomenon has been satisfactorily proved by Swammerdam, Malpighi, and other anatomists. The first-mentioned illustrious naturalist discovered, by accurate dissections, not only the skins of the larva and of the pupa incased in each other, but within them the very butterfly itself, with its organs indeed in an almost fluid state, but still perfect in all its parts. Of this fact you may convince yourself without Swammerdam's skill, by plunging into vinegar or spirit of wine a caterpillar about to assume the pupa state, and letting it remain there a few days for the purpose of giving consistency to its parts; or by boiling it in water for a few minutes. A very rough dissection will then enable you to detect the future butterfly; and you will find that the wings, rolled up into a sort of cord, are lodged between the first and second segment of the caterpillar; that the antennæ and trunk are coiled up in front of the head; and that the legs, however different their form, are actually sheathed in its legs. Malpighi discovered the eggs of the future moth, in the chrysalis of a silkworm only a few days old, and Reaumur those of *Bombyx dispar* even in the caterpillar, and that seven or eight days before its change into the pupa. A caterpillar, then, may be regarded as a locomotive egg, having for its embryo the included butterfly, which after a certain period assimilates to itself the animal substances by which it is surrounded; has its organs gradually developed; and at length breaks through the shell which incloses it.

This explanation strips the subject of every thing miraculous, yet by no means reduces it to a simple or uninteresting operation. Our reason if confounded at the reflection that a larva, at first not thicker than a thread, includes its own triple, or sometimes octuple, teguments; the case of a chrysalis, and a butterfly, all curiously folded in each other;—with an apparatus of vessels for breathing and digesting, of nerves for sensation, and of muscles for moving; and that these various forms of existence will undergo their successive evolutions, by aid of a few leaves received into its stomach. And still less able are we to comprehend how this organ should at one time be capable of digesting leaves, at another only honey; how one while a silky fluid should be secreted, at another none; or how organs at one period essential to the existence of the insect, should at another be cast off, and the whole system which supported them vanish.

Nor does this explanation, though it precludes the idea of that resemblance, in every particular, which, at one time, was thought to obtain between the metamorphosis of insects, especially of the *Lepidoptera* order, and the resurrection of the body, do away that general analogy, which cannot fail to strike every one who at all considers the subject. Even Swammerdam, whose observations have proved that the analogy is not so complete as had been imagined, speaking of the metamorphosis of insects, uses these strong words: "This process is formed in so remarkable a manner in butterflies, that we see therein the resurrection painted before our eyes, and exemplified so as to be examined by our hands." To see, indeed, a caterpillar crawling upon the earth, sustained by the most ordinary kinds of food, which, when it has existed a few weeks or months under this humble form, its appointed work being finished, passes into an intermediate state of seeming death, when it is wound up in a kind of shroud and encased in a coffin, and is most commonly buried under the earth, (though sometimes its sepulchre is in the water, and at others in various substances in the air,) and after this creature and others of its tribe have remained their destined time in this death-like state, to behold earth, air, and water, give up their several prisoners: to survey them, when called by the warmth of the solar beam, they burst from their sepulchres, cast off their cerements, from this state of torpid inactivity, come forth, as a bride out of her chamber,—to survey them, I say, arrayed in their nuptial glory, prepared to enjoy a new and more exalted condition of life, in which all their powers are developed, and they are arrived at the perfection of their nature; when no longer confined to the earth they can traverse the fields of air, their food is the nectar of flowers, and love begins his

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* "A priest who has drunk wine shall migrate into a moth or fly, feeding on ordure.—He who steals the gold of a priest shall pass a thousand times into the bodies of spiders. If a man shall steal honey, he shall be born a great stinging gnat; if oil, an oil-drinking beetle; if salt, a cicada; if a household utensil, an ichneumon fly."—*Institutes of Menu*, 353.

blissful reign; who that witnesses this interesting scene can help seeing in it a lively representation of man in his threefold state of existence, and more especially of that happy day, when at the call of the great Sun of Righteousness, all that are in the graves shall come forth, the sea shall give up her dead, and death being swallowed up of life, the nations of the blessed shall live and love to the ages of eternity?

But although the analogy between the different states of insects, and those of the body of man, is only general, yet it is much more complete with respect to his soul. He first appears in this frail body—a child of the earth, a crawling worm, his soul being in a course of training and preparation for a more perfect and glorious existence. Its course being finished, it casts off the earthy body, and goes into a hidden state of being in Hadəs, where it rests from its works, and is prepared for its final consummation. The time for this being arrived, it comes forth clothed with a glorious body, not like its former, though germinating from it, for though "it was sown an animal body, it shall be raised a spiritual body," endowed with augmented powers, faculties and privileges commensurate to its new and happy state.—And here the parallel holds perfectly between the insect and the man. The butterfly, the representative of the soul, is prepared in the *larva* for its future state of glory; and if it be not destroyed by the ichneumons and other enemies to which it is exposed, symbolical of the vices that destroy the spiritual life of the soul, it will come to its state of repose in the *pupa*, which is its Hades; and at length, when it assumes the *imago*, break forth with new powers and beauty to its final glory and the reign of love. So that in this view of the subject well might the Italian poet exclaim:

Non v' accorgete voi, che noi siam' vermi
Nati a formar l' angelica farfalla?*

The Egyptian fable, as it is supposed to be, of Cupid and Psyche, seems built upon this foundation: "Psyche," says an ingenious and learned writer, "means in Greek the human soul; and it means also a butterfly,† of which apparently strange double sense the undoubted reason is, that a butterfly was a very ancient symbol of the soul—from the prevalence of this symbol, and the consequent coincidence of the names, it happened that the Greek sculptors frequently represented Psyche as subject to Cupid in the shape of a butterfly;—and that even when she appears in their works under the human form, we find her decorated with the light and filmy wings of that gay insect."

The following beautiful little poem falls in so exactly with the subject I have been discussing, that I cannot resist the temptation I feel to copy it for you, especially as I am not aware that it has appeared any where but in a newspaper.

THE BUTTERFLY'S BIRTH-DAY,

BY THE AUTHOR OF 'THE BUTTERFLY'S BALL.'

The shades of night were scarcely fled;
The air was mild, the winds were still;
And slow the slanting sun-beams spread
O'er wood and lawn, o'er heath and hill.

From fleecy clouds of pearly hue
Had dropt a short but balmy shower,
That hung like gems of morning dew
On every tree and every flower.

And from the Blackbird's mellow throat
Was pour'd so loud and long a swell,
As echoed with responsive note
From mountain side and shadowy dell.

When bursting forth to life and light,
The offspring of enraptur'd May,
The *Butterfly*, on pinions bright,
Launch'd in full splendour on the day.

Unconscious of a mother's care,
No infant wretchedness she knew;
But as she felt the vernal air,
At once to full perfection grew.

Her slender form, ethereal light,
Her velvet-textur'd wings enfold;
With all the rainbow's colours bright,
And dropt with spots of burnish'd gold.

Trembling with joy awhile she stood,
And felt the sun's enlivening ray;
Drank from the skies the vital flood,
And wonder'd at her plumage gay!

And balanc'd oft her broider'd wings,
Thro' fields of air prepar'd to sail:
Then on her vent'rous journey springs,
And floats along the rising gale.

Go, child of pleasure, range the fields,
Taste all the joys that spring can give,
Partake what bounteous summer yields,
And live whilst yet 'tis thine to live.

Go sip the rose's fragrant dew,
The lily's honeyed cup explore,
From flower to flower the search renew,
And rifle all the woodbine's store:

And let me trace thy vagrant flight,
Thy moments too of short repose,
And mark thee then with fresh delight
Thy golden pinions ope and close.

But hark! whilst thus I musing stand,
Pours on the gale an airy note;
And breathing from a viewless band,
Soft silvery tones around me float!

—They cease—but still a voice I hear,
A whisper'd voice of hope and joy,
"Thy hour of rest approaches near,
"Prepare thee, mortal!—thou must die!

"Yet start not!—on thy closing eyes
"Another day shall still unfold,
"A sun of milder radiance rise,
"A happier age of joys untold.

"Shall the poor worm that shocks thy sight,
"The humblest form in nature's tsain,
"Thus rise in new-born lustre bright,
"And yet the emblem teach in vain?

"Ah! where were once her golden eyes,
"Her glittering wings of purple pride?
"Conceal'd beneath a rude disguise,
"A shapeless mass to earth allied.

"Like thee the hapless reptile liv'd,
"Like thee he toil'd, like thee he spun,
"Like thine his closing hour arriv'd,
"His labour ceas'd, his web was done.

"And shalt thou, number'd with the dead,
"No happier state of being know?
"And shall no future morrow shed
"On thee a beam of brighter glow?

"Is this the bound of power divine,
"To animate an insect frame?
"Or shall not he who moulded thine
"Wake at his will the vital flame?

"Go, mortal! in thy reptile state,
"Enough to know to thee is given;
"Go, and the joyful truth relate;
"Frail child of earth! high heir of heaven!"

A question here naturally presents itself—Why are insects subject to these changes?—For what end is it that, instead of preserving like other animals* the same general form from infancy to old age, they appear at one period under a shape so different from that which they finally assume; and why should they pass through an intermediate state of torpidity so extraordinary? I can only answer that such is the will of the Creator, who doubtless had the wisest ends in view, although we are incompetent satisfactorily to discover them. Yet one reason for this conformation may be hazarded. A very important part assigned to insects in the economy of nature, as I shall hereafter show, is that of speedily removing superabundant and decaying animal and vegetable matter. For such agents an insatiable voracity is an indispensable qualification, and not less so unusual powers of multiplication. But these faculties are in a great degree incompatible. An insect occupied in

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**Do you not perceive that we are caterpillars, born to form the angelic butterfly?

† It is worthy of remark, that in the north and west of England the moths that fly into candles are called *saules* (souls,) perhaps from the old notion that the souls of the dead fly about at night in search of light. For the same reason, probably, the common people in Germany call them *ghosts* (geistchen.)

* A few vertebrate animals, viz. frogs, toads, and newts, undergo metamorphoses in some respects analogous to those of insects; their first form as tadpoles being very different from that which they afterwards assume.—These reptiles too, as well as snakes, cast their skin by an operation somewhat similar to that in *larvæ*. There is nothing, however, in their metamorphoses at all resembling the *pupa* state in insects.

the work of reproduction could not continue its voracious feeding. Its life, therefore, after leaving the egg, is divided into three stages.—In the first, as *larva*, it is in a state of sterility; its sole object is the satisfying its insatiable hunger; and, for digesting the masses of food which it consumes, its intestines are almost all stomach. This is usually by much the longest period of its existence. Having now laid up a store of materials for the development of the future perfect insect, it become a *pupa*; and during this inactive period the important process slowly proceeds, uninterrupted by the calls of appetite. At length the perfect insect is disclosed. It now often requires no food at all; and scarcely ever more than a very small quantity; for the reception of which its stomach has been contracted, in some instances, to a tenth of its former bulk. Its almost sole object is now the multiplication of its kind, from which it is diverted by no other propensity; and this important duty being performed, the end of its existence has been answered, and it expires.

It must be confessed that some objections might be thrown out against this hypothesis, yet I think none that would not admit of a plausible answer. To these it is foreign to my purpose now to attend, and I shall conclude this letter by pointing out to you the variety of new relations which this arrangement introduces into nature. One individual unites in itself, three species, whose modes of existence are often as different as those of the most distantly related animals of other tribes. The same insect often lives successively in three or four worlds. It is an inhabitant of the water during one period; of the earth during another; and of the air during a third; and fitted for its various abodes by new organs and instruments, and a new form in each. Think (to use an illustration of Bonnet) but of the cocoon of the silk-worm! How many hands, how many machines does not this little ball put into motion! Of what riches should we not have been deprived, if the moth of the silk-worm had been born a moth, without having been previously a caterpillar! The domestic economy of a large portion of mankind would have been formed on a plan altogether different from that which now prevails.

THE PLOUGH BOY.

ALBANY: TUESDAY, JULY 30, 1822.

NEW PUBLICATIONS.

While the MINERVA, and the MECHANICS GAZETTE, of New-York, continue to grow in public estimation, other publications of a similar cast are starting up in different places to contend for a share of public patronage.—Though we heartily wish success to them all, we have our fears that some of them may become burthensome to their Editors, however useful they may be to the public. Independent of the high literary merit of the MINERVA, which all acknowledge who have read it, we feel a deep interest in the personal welfare and prosperity of its Editor, to whom we have frequently felt the weight of obligation for his valuable contributions to our columns. Not having the pleasure of an acquaintance, we have no personal predilections to interest us for the success of Messrs. MERCEIN—but when we reflect, that theirs is a paper—and the first of the kind—which has been started for the express purpose of promoting the interest and dignity of MECHANICS and the MECHANIC ARTS—that thus far it has been true and useful to the cause of our mechanic brethren, and the beneficial pursuits to which their talents and industry are devoted; that it has been principally instrumental in exciting a noble spirit of emulation among the young mechanics of New-York, from which the happiest consequences may eventually flow to our common country; and that it bids fair to maintain its characteristic traits, as the advocate and protector of the useful arts and their professors; we cannot but wish, that both it and the MINERVA may become permanent and profitable Journals.

Among other new publications, which have sprung up in different places, since the establishment of the *Minerva*, and *Mechanics Gazette*, is the MISCELLANEOUS REGISTER, at Geneva, by our old friend and correspondent —WILLIAM RAY—the first number of which is now before us, and which we do not hesitate to say, if properly potronised, and continued in the spirit of the specimen we have just examined, will reflect credit on the Western District. The form is quarto, the size about the same as THE PLOUGH BOY—the type new—the paper of an excellent quality —and if we have not already expressed with sufficient precision our opinion of its contents, let it be recollected that RAY is the Editor and Compiler, and no reader of THE PLOUGH BOY will be at a loss for our opinion. The work is religious, as well as literary, moral and scientific—and while the devout Christian will derive consolation from its pages in those solitary hours which are more or less the lot of all, the mere man of the world who possesses a taste for reading, will find in them that amusement which is suited to his disposition, and perhaps that which may give a new turn to his thoughts, and open to him prospects, in a future life, of which he never before so much as dreamed.

We have another new publication in our eye, from the South, but of this we shall speak in our next.

The Editor of the Catskill Recorder, need not be told, we trust, of our gratitude for his recent and very friendly notice of THE PLOUGH BOY. His hope, so liberally expressed, that it may meet with unwonted patronage, we likewise hope may be realised; although we frankly confess that our hope is not of the strongest cast. THE PLOUGH BOY has obstacles to contend with, which if fully explained, would surprise such liberal minds as that of Mr. Croswell.

This paper will become profitable whenever our Agricultural brethren shall become generally sensible of its utility. Until then we must content ourselves to live upon hope, which, by the bye, is not quite so hard to one enlivened by a small share of imagination, as the well-fed, fat and sleepy-headed portion of mankind are apt to imagine. But then it must be confessed, notwithstanding Shakspeare discovered such *sweet uses in Adversity*, that an empty purse and a hungry ***** are very apt to wake one out of a romantic reverie; and as wise a man as Shakspeare, if not as great a Poet, tells us that *hope deferred maketh the heart sick.*

Jesting apart, we have the satisfaction to believe that our paper is worth to every enterprising Farmer, triple the amount of the subscription. It contains, in quantity, in one volume, matter which would cost from ten to fifteen dollars, if purchased of the booksellers, in the ordinary book-form. For example:—The price of the Transactions of the Agricultural Society of Pennsylvania, in three volumes octavo, at the Bookstores, is NINE DOLLARS; and if any one will take the pains to make the comparison or calculation, he will find that not only the matter of those three volumes may be contained in one volume of THE PLOUGH BOY; but at least as much more, as would make one if not two more such volumes. Again, in our first volume we published, within a few pages, two Agricultural works, one of which, Sir H. Davy's Agricul-

tural Chemistry, cost us $3.50—yet, independent of those two volumes, that first volume of ours contained matter equal at least, in quantity, to three more such volumes. As to the *quality* of the matter we publish, the best evidence in its favour, is, the continued patronage of some men, who are well known for their correct taste and liberal scientific acquirements.

PLOUGH BOY SUMMARY.

FOREIGN AND DOMESTIC.

In our summary of this day, we have to record—

The destruction of the royal palace of his Owhyheean majesty, by fire, on the 12th of November last, and the successful efforts of the Americans present in stopping the progress of the ruinous element:——The promising aspect of commerce at the Sandwich Islands, and the triumph of Christian principles over the idolatry and superstition of the Islanders:——The opening of the new Theatre at Washington city, which took place on the 9th ult. with a slender audience; the building is superior to the old one:——The suspension, on the 8th ult. of the sales of public lots at Washington; the highest price obtained was *thirty* cents a square foot, for a handsome corner lot on the avenue:——The commencement of prosecutions against a number of persons, employed in cutting timber on the public lands of the United States, in Alabama:——The reception, in due form, of the noted commodore Aury, with his squadron, under the banners of the Columbian republic:——The illumination of Parama, with a public rejoicing, on the 12th of May, in consequence of our recognition of their independence:——The entrance of President Bolivar, after hard fighting, into Quito:——The number of deaths in the city of Washington, during the last month, which amounted to *thirteen*—7 adults, 6 children:——The violent attempt on the 3d ult. to assassinate one or all of three gentlemen, at the house of Mr. Hiriart, at Baton Rouge, viz. Mr. Hiriart, Judge Enault, his brother-in-law, and Mr. Chaumont, who were fired upon through the window while sitting round the supper table, from which the lady of the house and her two children, had just returned: Chaumont was killed, having received *thirty-five* buck-shot in different parts of his body; Enault was wounded in the leg and shoulder; and Mr. Hiriart escaped unhurt as did the murderers from being taken, owing to the confusion of the moment, and the darkness of the night:——The destruction, by two parties of hunters, at Fairfield, Herkimer co. N. Y. on the 10th ult. of 2786 squirrels, besides crows, hawks, &c. there were seventeen hunters altogether:——The recent launch, in England, of a ship of war of 120, and a frigate of 48 guns, built with round sterns, as it is said most of the new built ships are:——The termination of the long expected duel, between Col. Cumming, of Georgia, and Mr. M'Duffie, of South-Carolina, which was fought on the 8th ult. and in which Mr. M'Duffie was wounded in the back, just below the short ribs, at the first fire; he is on the recovery; and the seconds are now engaged in a newspaper conflict, which may lead to another duel; for in one publication M'Duffie is clearly charged with cowardice, whilst in the opposite one, this charge is repelled and Cumming is said to possess a low and contemptible spirit, and is termed a ferocious assassin, who will not be satisfied with any thing short of the life of his antagonist:—The appearance of yellow fever at New-Orleans, and the actual enforcement at Natchez, and the recommendation of the same at New-York, of the quarantine laws against vessels from that port:——The arrival at New-York, of the steam ship Robert Fulton, in only 16 days passage from New-Orleans, Havanna and Charleston, a distance of 2000 miles, with 150 souls on board, all in good health:——The award of the Emperor of Russia, as Umpire between England and the U. S. that the U. S. are entitled to indemnity for the slaves and other private property taken off by the British during the late war:——The arrest of a robber in Philadelphia, on the 16th ult for snatching up and running off with a purse which a countryman had laid down in his market wagon; the robber had a pistol in his pocket:——The high state of the Thermometer at Buffalo on the 7th inst. being at *ninety-six* in the shade:——The prompt and very honourable acquittal of Oliver Forward, indicted for forgery at Buffalo, it appearing on the trial, that the indictment was the offspring of malignity and revenge on the part of the accuser; a result which we were prepared to expect from our long acquaintance with Judge Forward, both in private and public life:——The sale of Belzonis Egyptian mummy, at Plymouth, Eng. for non-payment of duties;—it brought 1,193l.:——The very successful efforts of Messrs. *Mercein*, Editors of the New-York Mechanics Gazette, in exciting the emulation of the Apprentices in New-York, by the offer of premiums, by means of which a great variety of specimens of elegant and superior workmanship have been produced in almost every branch of the fine and useful arts; but justice requires us to add, that the premiums were furnished by the donations of many liberal and public spirited citizens;—the Apprentices in general deserve credit for their laudable emulation:——The recommendation, by a writer in the Democratic Press, at Philadelphia, of Libraries to be established by and for the use of *Journeymen Mechanics*:——The flourishing state of Dickinson College, Pa: now under the Presidential authority of Dr. Mason, late of New-York, as evinced by the gratifying intelligence, that Dr. Mason is not only recovering from the injury lately sustained by a fall from his horse; but that in other respects his health is better than it has been for the last six years:——The departure of the U. S. schooner Grampus and Shark, from the Havanna, for the coast of the Spanish Maine, in quest of the pirates under command of Don Raphael Gondolpho, a daring desperado:——The expenses of the almshouse at Philadelphia, for the last year, which are stated at 40,903 dollars and 83 cents, of which 3,351 dollars and 5 cents were paid for liquors:——The melancholly intelligence of the loss of a boat belonging to the Franklin, 74, near Valparaiso, on the 19th of March, occasioned by attempting to land, through the gulf, at the town of Quintera, by means of which the following persons were drowned, viz. Lieut. James A. Perry, brother of the late Commodore Perry, Dr. Cornelius C. De Puy; Robert Marshall, John Cremer, Edward Preble, Robert B. Coffin, midshipmen: and John Smith,, 1st, and Melancthan C. Reed, seamen: whilst midshipman Pinkham, and a sailor lad, M'Daniels, had the good fortune to escape; young *Coffin*, grandson of the venerable postmaster of Hudson, was long sustained amid the surf by his own energy, and the intrepidity of Lieut. Perry, who would not leave him, till they finally sunk together!——The commencement of a plan, at Bath, Steuben co. N. Y. on the 14th ult. to connect the Susquehannah river with the grand Canal, by a collateral branch, through the media of Conhocton river, and Crooked and Seneca Lakes; General M'Clure, chirman; Dugald Cameron, Secretary; Elkanah Watson, of this city, Orator or Spokesman, by request of the meeting; Welliam Woods, John Kennedy, Henry Wells, Samuel Baker, and William B. Rochester, committee to petition, and procure petitioners, to the Legislature; James Brundage, with the Chairman and Secretary, a committee of correspondence; and the thanks of the meeting voted to Elkanah Watson for his useful suggestions, enlightened views, and uniform, patriotic exertions:——The complete state of the Steam Boat Ontario; the punctuality of her trips between Ogdensburgh and Lewiston; and the good management and gentlemanly conduct of Capt. *Hugunin*:——The official decision of the question, arising under the 6th article of the Treaty of Ghent, by which all the islands in the Niagara river (except Navy Island) and Drummond's island, in Lake Huron, have fallen to our side; whilst the military works at Rouse's Point, Lake Champlain, fall on the other side:——The drowning of *Ervin Pierce*, whilst bathing in the Niagara river, at Black Rock, on the 13th inst:——The establishment of post routes from Batavia, by the village of Lockport, to intersect the ridge road at Wm. Molyneaux's, in Cambria; and from Moscow, in Livingston co. to the village of Fredonia, in Chatauque co.:——The termination of the late elections in France, in a ministerial majority.

POETRY.

THE HERMIT.

By Beattie.

At the close of the day, when the hamlet is still,
And mortals the sweets of forgetfulness prove,
When nought but the torrent is heard on the hill,
And nought but the nightingale's song in the grove:
'Twas thus, by the cave of the mountain afar,
While his harp rung symphonious, a Hermit began;
No more with himself or with nature at war,
He thought as a Sage, though he felt as a Man.

"Ah why all abandon'd to darkness and wo,
"Why, lone Philomela, that languishing fall?
"For Spring shall return and a lover bestow,
"And Sorrow no longer thy bosom inthral
"But, if pity inspire thee, renew the sad lay,
"Mourn, sweetest complainer, man calls thee to mourn;
"O soothe him whose pleasures like thine pass away:
"Full quickly they pass....but they never return.

"Now gliding remote, on the verge of the sky
"The Moon half extinguish'd her crescent displays;
"But lately I mark'd, when majestic on high
"She shone, and the planets were lost in her blaze.
"Roll on, thou fair orb, and with gladness pursue
"The path that conducts thee to splendor again.
"But Man's faded glory what change shall renew!
"Ah fool! to exult in a glory so vain!

"'Tis night, and the landscape is lovely no more;
"I mourn, but, ye woodlands, I mourn not for you;
"For morn is approaching, your charms to restore,
"Perfumed with fresh fragrance, and glittering with dew.
"Nor yet for the ravage of winter I mourn;
"Kind Nature the embryo blossom will save.
"But when shall Spring visit the mouldering urn!
"O when shall it dawn on the night of the grave!"

'Twas thus, by the glare of false Science betray'd,
That leads to bewilder; and dazzles, to blind;
My thoughts wont to roam, from shade onward to shade,
Destruction before me, and sorrow behind.
"O pity, great Father of light," then I cry'd,
"Thy creature who fain would not wander from Thee!
"Lo, humbled in dust, I relinquish my pride:
"From doubt and from darkness thou only canst free."

And darkness and doubt are now flying away,
No longer I roam in conjecture forlorn.
So breaks on the traveller, faint, and astray,
The bright and the balmy effulgence of morn.
See Truth, Love, and mercy, in triumph descending,
And Nature all glowing in Eden's first bloom!
On the cold cheek of death smiles and roses are blending,
And Beauty Immortal awakes from the tomb!

FOR THE PLOUGH BOY.

Selected from the Gentleman's Magazine, for October, 1748.

By A. S.

THE HUSBANDMAN'S MEDITATION IN THE FIELD.

With toilsome steps when I pursue,
O'er breaking clods, the ploughshare's way,
Lord teach my mental eye to view
My native dissoluble clay.

And when with seed I strew the earth,
To thee all praises let me give,
Whose hand prepar'd me for the birth,
Whose breath inform'd and bade me live.

Pleas'd I behold the stately stem
Support its bearded honour's load:
Thus, Lord, sustain'd by thee, I came
To manhood thro' youth's dang'rous road.

Purging from noxious herbs the grain,
Oh! may I learn to purge my mind
From sin's rank weeds of deepest stain,
Nor leave one baneful root behind.

When blasts destroy the opening ear,
Life, thus replete with various wo,
Warns me to shun, with studious care,
Pride, my most deadly latent foe.

When harvest comes, the yellow crop
Prone to the reaper's sickle yields;
And I beneath Death's scythe must drop,
And soon or late forsake the fields.

When future crops, in silent hoards,
Sleep, for a while to service dead;
Thy emblem this, oh! grave affords
The path to life, which all must tread.

VETERINARY.

CANKER.*

This disease frequently originates in a Thrush, and most commonly attacks the hind feet; it generally proves difficult to cure, and not unfrequently incurable. The frog is the part first attacked, which becomes soft and rotten, discharging matter of a peculiarly offensive smell, the horney frog is at length totally destroyed, and the sensible frog, instead of secreting horn, forms a substance somewhat resembling shreds of leather. The disease soon extends to the *sole* and other parts of the foot, even to the coffin bone, and is then incurable. The first thing to be done is to cut away freely all the diseased parts, and when the bleeding is stopped, let the following liniment be applied, and repeated every morning; the dressings may be kept on by means of a *bar shoe*.

Liniment.

Oil turpentine, 1 ounce; Sulphuric acid half ounce; Mix, continually in the open air and in a cool place, to prevent inflammation. Tar 4 ounces, R. Lawrence adds, and some dry tow or powdered lime to absorb the discharge.

Pressure on the diseased part will very materially assist in effecting a cure: whenever the foot is dressed, such diseased parts as may again make their appearance are to be carefully removed, and to such as do not appear to be sufficiently affected by the liniment, let a little sulphuric or nitrous acid be applied,—When the parts which were diseased begin to look red and healthy, and the discharge loses that peculiar smell before noticed, becoming whiter and of a thicker consistence, there is great probability of a perfect cure being affected, and when these favourable appearances take place, some mild application will be proper, except to such parts as do not appear to have entirely lost their foul appearance.

*Lameness in Stifle**

Proceeds from external injury.—Camphored spirit of wine applied every day.

Lameness in the Whirl-bone

Or articulation of Thigh-bone with the Pelvis. The animal drags the leg after him on the toe. Camphored spirit of wine—and blisters.

Lameness in Coffin joint.

Symptoms—Great heat round the Coronet; the horse does not bring his foot to the ground; and by his standing with his leg advanced before him as much as possible.—Blisters to the Coronet.

* R. Lawrence.

Age of discovery.—A late English publication states that the skin of the silver-eel, when dried and made garters of and worn, prevents all complaints of the cramp.

* White's compend.

☞ COMMUNICATIONS and SUBSCRIPTIONS for this paper, received at the Printing-Office, No. 87, South-Pearl-Street. All letters from abroad, directed to the EDITOR, Albany, will be duly attended to.—Each volume comprises twelve months, or fifty-two numbers—the numbers are issued weekly on Tuesdays, and the volume commences the first Tuesday in June.

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